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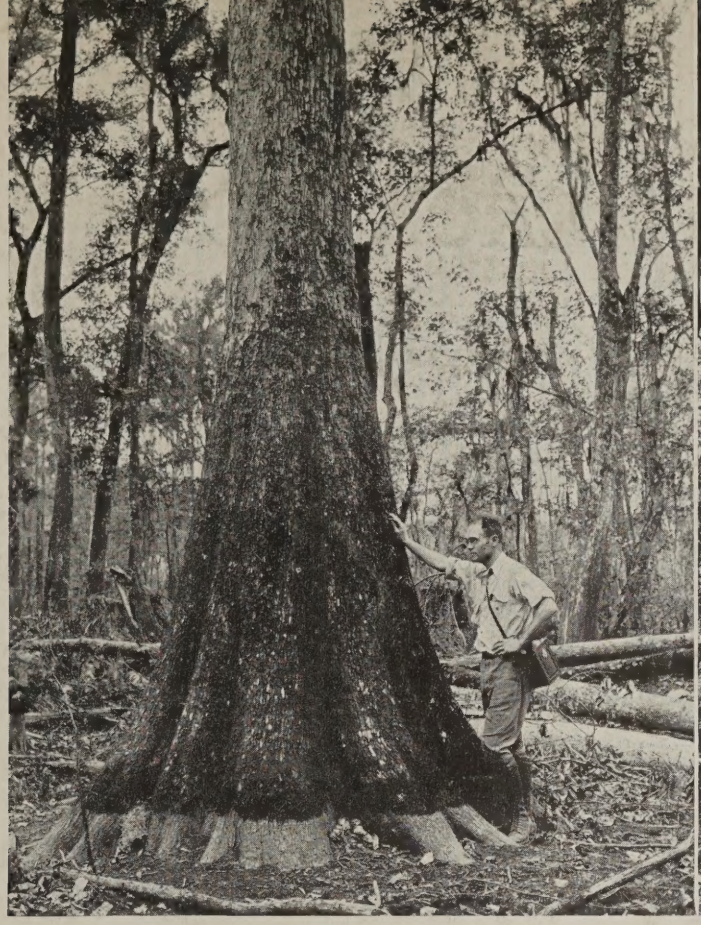
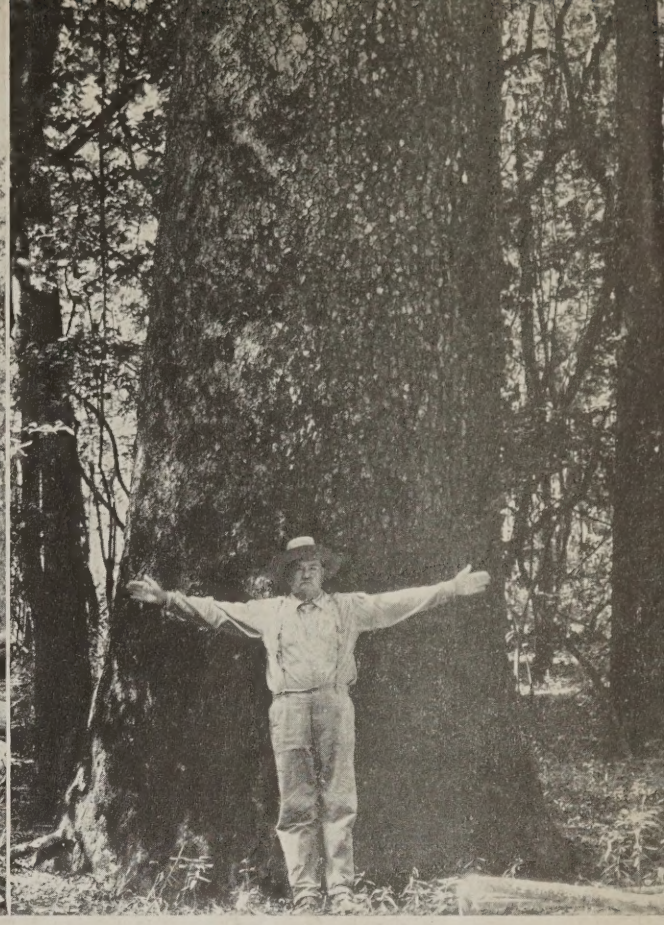




(*Photograph Courtesy U. S. Forest Service*)

Tupelo (Nyssa aquatica) The water nymph lives with cypress in the swamps.

Black Gum (Nyssa sylvatica) The wood nymph lives with many kinds of forest trees.

TUPELO AND BLACK GUM

FROM

SOUTHERN HARDWOOD FORESTS

THE NATURE, CHARACTERISTICS, AVAILABILITY, DISTRIBUTION AND USES OF TUPELO AND BLACK GUM

SOUTHERN HARDWOOD INFORMATION SERIES

NUMBER 4

SOUTHERN HARDWOOD PRODUCERS, Inc.
805 STERICK BUILDING
MEMPHIS, TENNESSEE

A.I.A. File 19a2

TUPELO AND BLACK GUM

THEIR NATURES . . USES . . AVAILABILITY

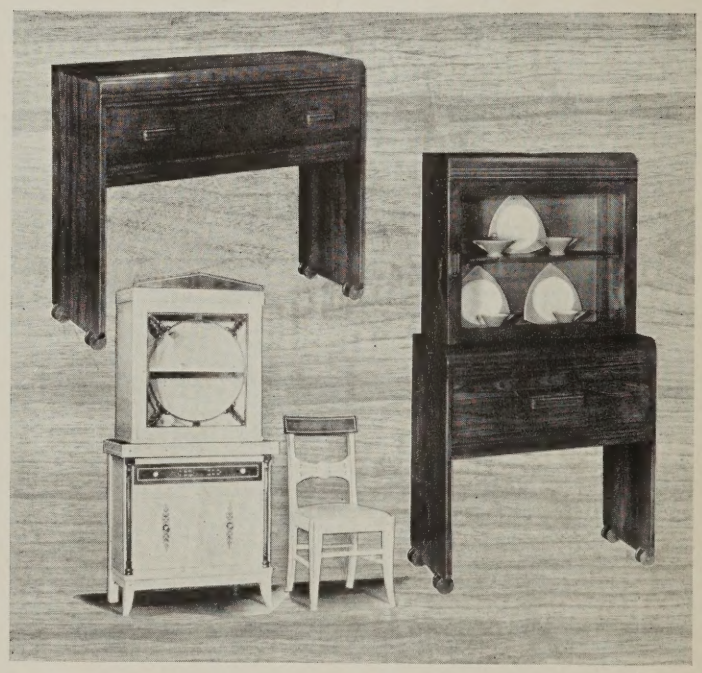
SOUTHERN HARDWOOD PRODUCERS, INC.

MEMPHIS, TENNESSEE

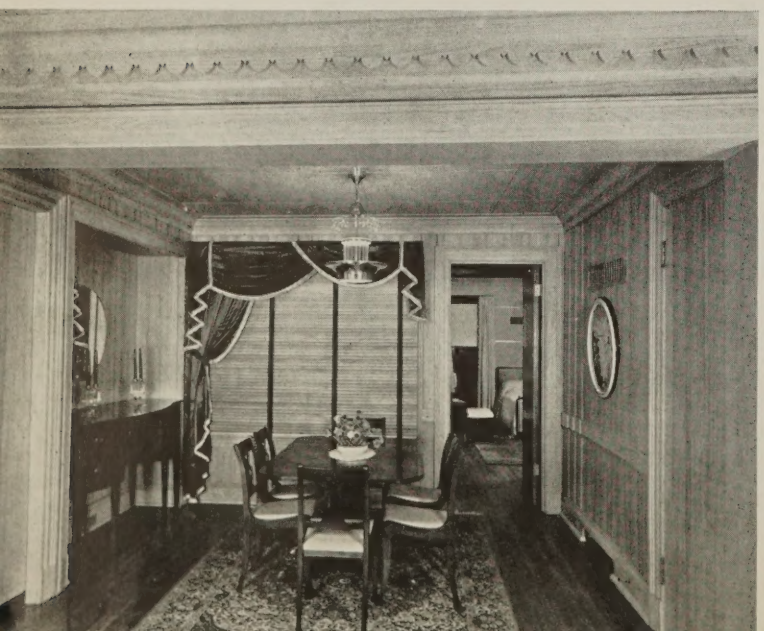
Two Southern hardwoods coming into increasing general use are tupelo and black gum. Botanically, the woods are closely related, belonging to the same genus (*Nyssa*) and until recent years have been sold under either common name. Each wood, however, has properties and characteristics of its own. Manufacturers recognize these distinctions and consequently the two hardwoods are now being merchandised more and more under their respective names of tupelo and black gum.

Other names have been used for tupelo, as swamp tupelo, cotton gum, sour gum, swamp gum, bay poplar and hazel pine. Black gum has been called sour gum, pepperidge and tupelo gum. Some of these names continue in use locally.

Among the botanists, silviculturists, dendrologists and other scientific groups, tupelo is labeled *Nyssa aquatica,* and black gum is named *Nyssa sylvatica.* There are two other trees of this genus *Nyssa,* swamp black gum (*Nyssa biflora*) and sour tupelo gum (*Nyssa ogeche*) which are manufactured into lumber but they are of less commercial importance.



Attractive when stained—unexcelled as a base for enamels—tupelo and black gum in beautiful modern furniture.



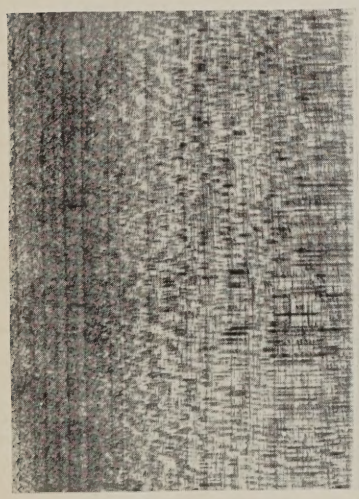
Paneled walls of Ribbon Stripe black gum—tupelo ceiling—ash trim and a magnolia venetian blind blend together in a modern light finished dining room.

YOU ARE USING TUPELO AND BLACK GUM

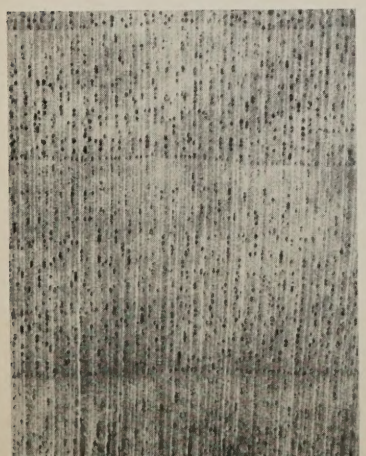
The production as well as the uses of these woods has been expanding and it is not unlikely that you have some tupelo and black gum rendering you good, friendly service, as only wood can do. That prize coat-hanger made of some kind of light colored wood on which you like to hang your garments, instead of the wire contraption sent

Tupelo leaf, fruit and buds—nature's faultless tools.

Plain sawn tupelo is attractive in the natural finish and is unexcelled for paints and enamels.



Quarter sawn tupelo has a delicate figure.



The magnified end-grain of tupelo shows the grown-in smooth texture.

back from the cleaners, is probably made of tupelo. Bed rails are made extensively of tupelo and many hidden parts of furniture, as well as drawer sides and bottoms, where dove-tailing, tongue and groove, or other special machine work is necessary. You may have bought some new furniture recently. For example, an occasional table which has a pleasing, satiny, changeable, ribbon stripe unlike anything you have seen in the past. That table is quite likely to be quartered black gum. So, the two woods are serving you in the structural parts of the furniture, as veneers for taking enamels, and as solid furniture exposing a figure and design of their own. Tupelo and black gum are used in the manufacture of the new blond furniture. They are natural blonds—not peroxide.

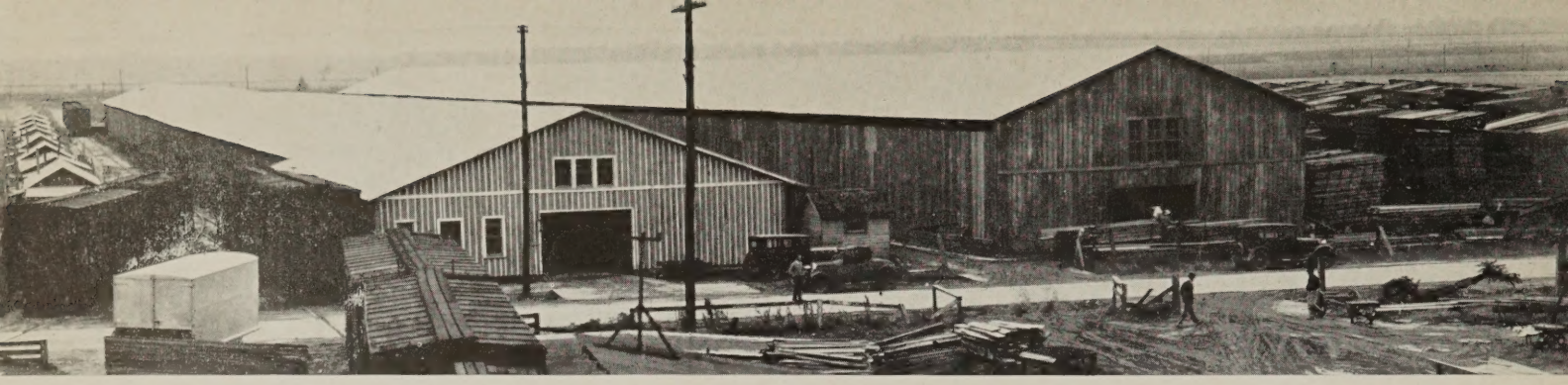
Quite a quantity of these woods are used annually. In 1929 306,634,000 board feet of tupelo and black gum were manufactured (U. S. Bureau of Census). The late depression reduced consumption of these woods as it did consumption of all materials. In 1933 the cut dropped to 152,798,000 board feet, but subsequent years show a gradual increase. The latest U. S. Census figures available (1936) report a production of 215,755,000 board feet of black gum and tupelo combined. These two woods taken together in that year rank fifth in volume of American hardwoods used.

Europe gets her supply of woods from all over the world, and in that highly competitive market of many species, tupelo and black gum find an important niche. Large quantities of this lumber are exported annually, and foreign manufacturers convert it into many useful articles. The reasons for its increasing use here and abroad are based on availability, reasonable cost and thoroughly satisfactory working properties.

PROPERTIES OF TUPELO AND BLACK GUM

Both tupelo and black gum belong to the group of important and useful woods having an interlocked grain, which means that the wood fibers, as they grow in the trees, run in one direction a while and then in the other. Years ago woods possessing these characteristics gave the lumber manufacturers trouble and were, despite their excellent qualities, rejected in favor of woods having a less complex structure. Science and research in the manufacture and care of lumber have mastered the problem of getting flat lumber from most every tree species. The seasoning and kiln drying of tupelo and black gum is no longer a mystery. More than two hundred million board feet per year of use testify to this fact.

Tupelo and black gum are fine textured woods and are diffuse porous. The pores in tupelo are larger than in black gum, but in neither wood are they discernible with the naked eye. As a result of these minute pores and the diffuse porous arrangement, both woods make an excellent base for enamel or paints, as well as finish beautifully in stains, varnishes and lacquers. The lumber of tupelo and black gum logs contains a large amount of sapwood, which is grayish white in color, providing unequalled material for articles left in the white or unfinished condition, as step-ladders, clothes racks, rolling pins, ironing boards, bread boards, wooden spoons, etc. The heartwood of tupelo and black gum is pale to moderately dark, brownish-gray. The two woods are difficult to split, thus having further excellent characteristics for use in the above mentioned ways and, because of being hard to split, are



Southern hardwoods after drying are properly protected. These storage buildings cover more than two acres of ground and are capable of holding nearly 7 million feet of hardwoods.

used extensively in the manufacture of crates and boxes. Your Coca Cola is often delivered in tupelo cases, and large quantities of Texas and Louisiana fruits and vegetables are shipped to market in crates made of tupelo. Boxes and crates made of tupelo, because of its light color and smooth texture, can be printed with brand and firm names better than most any other wood. Both woods when cut into lumber are free from defects to a high degree. There is very little rot; shake and knots are about the only defects, and since the lower grades and the light wood of the butt logs are worked into boxes and crates, the purchaser of tupelo and black gum lumber gets better than average grade wood. The woods are moderately heavy and moderately strong, weighing thirty-five pounds per cubic foot at 12 per cent moisture content.

RIBBON STRIPE BLACK GUM IS INTRIGUING

Printed pictures of the wood surfaces quite frequently fail to bring out the delicate beauty of the wood itself, and so it is in the case of ribbon stripe quartered black gum. The wood should be seen in order to appreciate its full beauty. The bands of wood with the grain running in alternate directions catch the light and reflect it at different angles, thus producing alternate stripes of light and dark which, when the wood is moved or the observer moves, change color, making an effect that might best be compared to changeable silk. This effect is present in the almost white quartered sapwood as well as in the light brownish-gray heartwood.

HOW TO FINISH BLACK GUM

To retain the changeable ribbon stripe effect in black gum the wood should be finished with thin, clear coats of light colored finishes. Blond furniture is the very last word in style and black gum, dark as the name may sound, is nevertheless a white wood (sapwood) and needs no bleaching to become a blond.

The heartwood with a colorless, or nearly colorless finish retains its changeable quality and the completed job is a beautiful light grayish-brown. If you desire your finishes darker, black gum takes the browns and reds and comes out a handsome cabinet wood with light and dark irregular stripes or bands. The darker stains, however, lessen the changeable qualities of the stripes. Reference could be made to walnut or mahogany finishes but ribbon stripe black gum when finished, is fully on a par with these two beautiful woods and has its own intrinsic, distinctive beauty.

HOW TO FINISH TUPELO

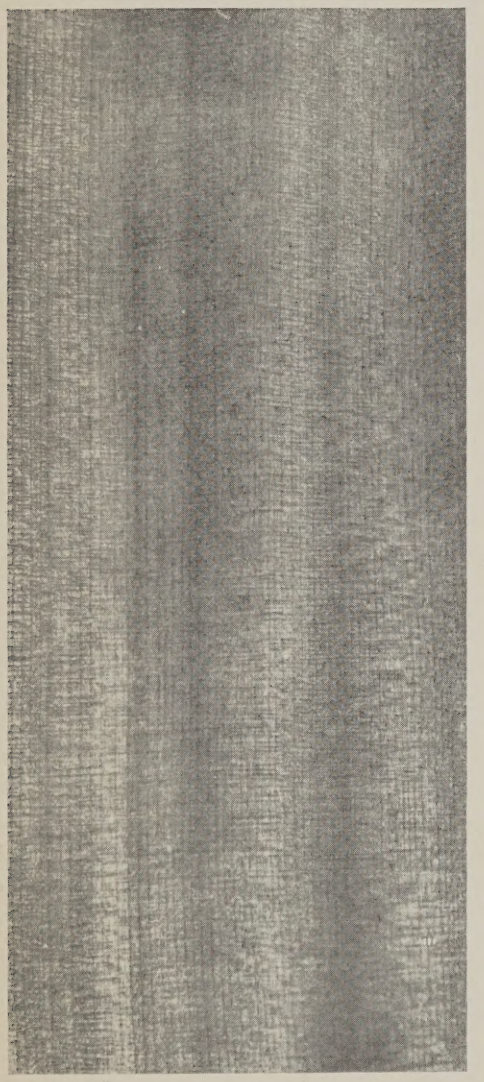
Tupelo, like its close relative, black gum, is light in color. It does not possess much figure but blond effects can be obtained with comparatively colorless lacquers or other light finishes. The wood stains well. It is also extensively used in panels and cores and exposed solid parts of furniture. It is one of the best woods to take enamels, and is extensively used as a base for enamel in interior trim as well as kitchen cabinets and painted furniture, presenting an absolutely smooth surface when used as solid parts, or as rotary cut veneer.

AIR DRIED AND KILN DRIED TUPELO AND BLACK GUM

Both woods are sold air dried and kiln dried. The many million feet of tupelo and black gum used annually are ample evidences of the progress and development of scientific seasoning. Reputable manufacturers, such as those in Southern Hardwood Producers, Inc., are constantly improving seasoning practices. The vast strides in the seasoning of hardwood lumber can well be illustrated with tupelo. In the early days the tupelo boards were put into the stacks green from the saw with only three to four rows of stickers to the pile. The ends of the boards projected from the rear of the pile and oftentimes green boards six to eight inches wide were used as stickers. These wrong practices resulted in warped, twisted, stained, low-grade lumber.

Contrast this word picture of early practices with the picture of the stack of tupelo shown on the accompanying page. A stack of lumber is a prosaic thing, but prosaic things are the forerunners of beauty and utility. Without careful supervision of the processing of raw materials beautiful furniture and useful articles of hardwood would not be possible. Tupelo lumber shipped today may be seasoned in one of several ways, all of which are the result of studying the specific characteristics of the wood. Air seasoned, it is carefully piled with ample rows of sound, dry, planed stickers of even thickness and width, placed in perpendicular line, one above the other in the pile. The accompanying picture shows nine rows of stickers. Another practice is to sticker the green lumber on the wheeled trucks as it comes from the saw. The lumber is allowed to surface dry for twenty-four hours before being placed in the stacks. Another practice is to kiln dry tupelo green from the saw and then pile it in sheds until shipped. The elongated picture of two sheds shown ad-

Black Gum leaf, fruit and buds.



A photograph hardly does justice to the beautiful, satiny appearance of Qtd. Ribbon Stripe black gum.

Magnification of black gum shows it has the even texture necessary for smooth finishes.

jacent to this text, while not a thing of beauty, gives a view of 6,500,000 feet of tupelo storage capacity.

The kiln drying of tupelo, after it has been carefully air seasoned to twenty per cent moisture content, takes no more time and attention in the modern kilns of today than other species of hardwoods. Accepted and scientifically derived seasoning practices used by the members of Southen Hardwood Producers, Inc., insure properly conditioned tupelo and black gum for their many uses.

THE USES OF TUPELO AND BLACK GUM

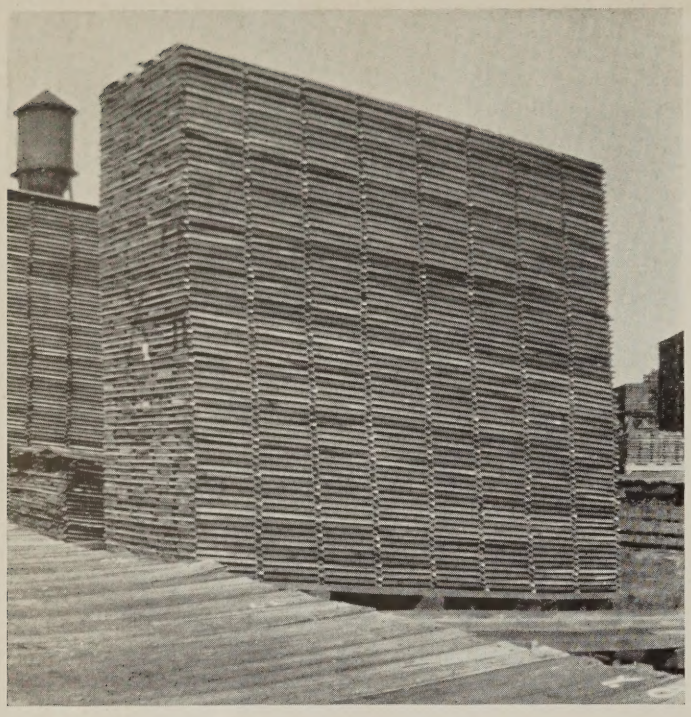
Tupelo and black gum, because of their physical characteristics—light color, smoothness, non-splitting, etc., have many specialized uses as well as the more conventional ones. Mallets, mauls, pulleys, saddle trees, toilet seats, and a host of other things, as rolling pins, potato mashers, etc., give some idea of the adaptability of the woods. Where resistance to wear, to gouging out, and to splintering are of prime importance—as in dock flooring, bridge planking and railroad crossing plank—these woods give excellent satisfaction. They are used for car decking, particularly in gondolas where loading and unloading is done by steam shovels, or similar equipment. Boxes and crates of tupelo and black gum are increasing in use constantly. Their smoothness and light color make printing easy. A box or a crate made of these woods helps sell the fruits and vegetables or other articles packed therein. The foregoing specialized uses, added to the more conventional ones listed below, make these woods extremely desirable in many industries. Some of the principal uses of tupelo and black gum are:

- Interior Finish
  - Trim
  - Mouldings
  - Built-in Cabinets
  - Sash and Doors
  - Flooring
- Home Furniture
  - Tables
  - Chairs
  - Case Goods
- Office Furniture
- Kitchen Cabinets
- Radio Cabinets
- Phonograph Cabinets
- Store & Bank Fixtures
- Picture Frames
- Tubs
- Pails
- Boxes
- Barrels
- Crates
- Kitchenware
- Clothes Hangers
- Corewood
- Plywood
- Veneers
- Pulpwood
- Toys
- Cigar Boxes
- Rollers
- Mine Props
- Ties
- Car Decking
- Crossing Plank
- Railroad Cars

HOW TUPELO AND BLACK GUM ARE GRADED

Tupelo and black gum are graded under the rules of the National Hardwood Lumber Association, as are all hardwoods grown and used in the United States and Canada and, due to the similarity in the gross physical characteristics observable under inspection for grades only, no differentiation is made by the inspector between tupelo and black gum, except in the case of quartered black gum and quartered black gum "ribbon stripe." In buying the plain grades of both woods the purchaser should be familiar with his manufacturing connections and order tupelo or black gum as his needs or desires dictate.

Hardwoods are measured and graded on the basis of cuttings in a board. A unit of cutting is 12 square inches,



A typical stack of tupelo. Note the care and precision used in stacking this lumber. Nine rows of stickers insure straight, flat boards.

or a piece 1" wide by 12" long. Since most hardwood lumber is cut up and used to manufacture small articles, dimension mill products, flooring, furniture, etc., which only require comparatively small pieces of wood, this system of grading on cuttings is logical and convenient. It would be needless expense for a manufacturer of children's toys, for instance, to buy a carload of firsts and seconds tupelo or black gum when he could easily cut out all the defects in a car of No. 1 Com. & Selects with very little waste, and still use perfectly clear lumber in his product.

The following is a brief summary of the grades of tupelo and black gum in accordance with the rules of the National Hardwood Lumber Association:

FAS (First and Seconds; sometimes written "1s&2s)—These are the highest grades. It is a common practice in the lumber industry to combine and sell them as one grade, however, with not less than 33⅓% of the entire shipment in Firsts.

No. 1 C&S (Number One Common and Selects)—Which, in this combination form the second highest grade, Selects being the better of the two. It is an understanding that when sold as No. 1 C&S the shipment shall contain all the Selects that the logs produce.

No. 2 COM. (No. 2 Common)—This grade ranks third in quality and price.

No. 3 COM. (No. 3 Common)—Usually a combination of No. 3A Com. and No. 3B Com., but when sold in combination it must be understood that all the No. 3A Com. boards that the logs produce will be included.

Quartered Black Gum Lumber—This is manufactured and sold in the following grades: FAS, No. 1 C&S, No. 2 Com. Pieces below the grade of No. 2 Com. may be mixed and sold with sap gum.

Quartered Black Gum "Ribbon Stripe"—This wood has an extremely attractive figure and its use for interior trim, wall surfaces and furniture is rapidly increasing. Some consumers regard it as one of our most beautiful native woods. An order specifying "ribbon stripe" requires that each board in the grade desired must be selected by the inspector for this peculiar stripe effect, which is caused by the spiral, or wavy grain, disclosed only in quarter sawing. To pass inspection, the board must show, at least one side, 90% in the aggregate of this "ribbon stripe" effect.

TUPELO AND BLACK GUM TREES GROW DIFFERENTLY

It should prove interesting to become better acquainted with two trees which furnish us with lumber that is so beautiful, and adaptable to so many uses. Even their Latin names are symbolic of romance. The derivation of the botanical name "*Nyssa*" originated from the classical name Nymph. It naturally followed that tupelo, the one which loves the water, should be called *Nyssa aquatica* (water Nymph). Both trees belong to the Dogwood family but they are the only trees in this family (Cornaceae) which are of any great commercial importance

Although the appearance of black gum and tupelo lumber is quite similar, the natural characteristics of the two trees, as we find them in the forest, differ greatly. Tupelo is generally found growing in swamps and is associated most commonly with cypress, while black gum prefers a more elevated situation on moist, fairly well drained, loamy ridges where it keeps company with such trees as the cow oak, hickory and magnolia. The shape of the bole, or trunk, of these two species differs so greatly that we could hardly mistake them. The butt of the tupelo trunk is swollen, similar to cypress; black gum, on the other hand, usually has a straight butt. These two characteristics, vis. habitat and trunk form, are valuable means of identification even at a distance. If, however, there is some doubt concerning which is which, this may be quickly removed upon closer examination. The bark of black gum is very distinctive, resembling alligator hide, to a certain extent, because of its peculiar deeply fissured, block-like light reddish or yellowish-brown scales. Tupelo bark is thin, brownish-gray, with low scaly ridges on the swollen butt and well-defined longitudinal ridges on the middle and upper portions of the trunk. On the black gum tree the leaves are linear-oblong to obovate, about four inches long and two inches wide. The upper surfaces of the leaves are dark, shining green and sometimes look as though they had been waxed and polished. The fruit is a small, ovoid, dark blue drupe, ⅓ to ⅔ inches long. Tupelo leaves are larger. They average about seven inches in length and three inches in width, and the fruit is dark purple, about an inch long. On a blustery day in the Fall it is a familiar sound to hear these Tupelo seeds pelting the water under the trees. It sounds like someone throwing a handful of gravel on the water.

Another singular difference which cannot be overlooked, is the fact that tupelo will often be found growing in pure, or nearly pure, stands, as compared with black gum which seldom, or never, does. Some of the finest black gum trees are isolated specimens of tremendous size, as shown in the photograph on the cover. Tupelo, although it does not

reach this unusual size, nevertheless produces some enviably fine logs. It is strictly a Southern species and the largest stands are found in Louisiana, the Mississippi Delta and the maritime regions of the Gulf States. Black gum is found locally in practically every state in the east but reaches its greatest development in the Southern forests. The brilliance of the Autumn foliage of black gum is admired by nature lovers throughout the country.

BLACK GUM AND TUPELO SUPPLY INEXHAUSTIBLE

In the lumbering days of the past, great quantities of cypress were cut from the Southern swamps; but the tupelo, being unrecognized as a lumber species at that time, was usually left unmolested. The result was that the tupelo, left without competition, reseeded itself and in a short time, formed pure stands over these entire areas. This was a contributing factor of primary importance to the Southern hardwood industry. It is estimated, conservatively, that at present the total stand of black gum and tupelo is 40,000,000,000 board feet and, strangely enough, the proportions of black gum and tupelo in this figure are 50-50.

A conservative assumption of 3% annual increase in growth per year translated into board feet gives us 1,200,000,000. A balanced average yearly production of tupelo and black gum, figuring both pre-depression and depression years, gives us 225,062,000 board feet. This is roughly only about one-fifth of the figure on annual growth above. In other words, we could increase our production to several times as much as we are cutting now, allow for wastage and other than lumber uses, and still retain permanently our National wealth of forty billions of feet of these species.

There was a day when conservationists predicted a shortage in our national timber resources. It was generally believed that the lumber industry was exploiting the forests so rapidly that nothing short of a miracle could save us from utter destitution. It is not difficult now to understand why this prediction was made. The annual timber consumption ran upwards of 40 billion board feet for many years, reaching a high point of 45 billion in 1907. At this time no forestry methods were used by the lumbermen. It was a case of "cut out and move out." Today, things are vastly different; many lumber concerns practice forestry on a sustained yield basis, and coupled with this, the present day lumber consumption is considerably less than it was 30 years ago. Utilization is also more complete. It must not be forgotten, too, that timber, like cotton, is a growing crop. Millions of acres of abandoned farm land in the South are reverting to timber, some already bearing trees large enough to cut, although most of our logging is still being carried on in the extensive virgin timber. The problem of the future seems to be what to do with all our timber.

BLACK GUM AND TUPELO AVAILABLE IN THE SOUTH

Since these two trees are distinctly Southern species in the lumber industry, they have no competition from other sections of the country. Reputable firms who manufacture tupelo, black gum, and other hardwoods will be found listed on the back cover of this bulletin. In addition to manufacturing all the standard grades of air dried and kiln dried rough lumber, many of these firms produce finished and semi-finished articles of hardwood, such as flooring, moulding, interior trim, veneers, hardwood dimension and prefabricated items of all kinds.

THE SOUTH HAS A HARDWOOD FOR EVERY USE

In the following list of Southern Hardwoods you will find the kind to meet your requirement:

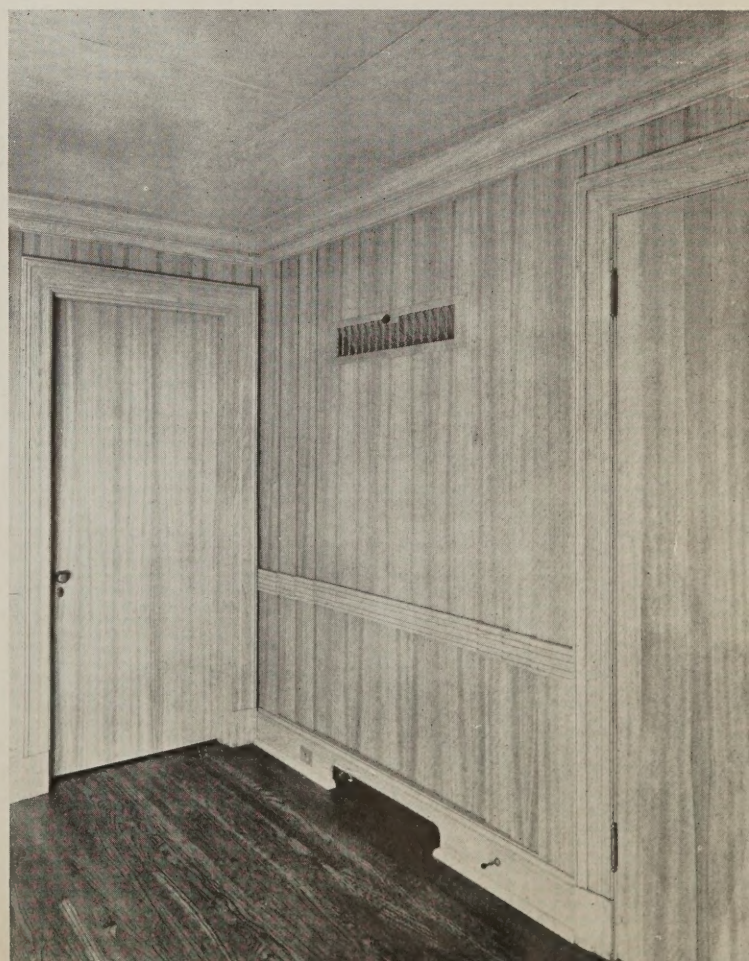
Ash	*Gum (black)*	*Oak (red)*
Basswood	*Gum (red and sap)*	*Oak (white)*
Beech	*Hackberry*	*Poplar*
Cottonwood	*Hickory*	*Pecan*
Cypress (yellow) softwood	*Magnolia*	*Persimmon*
Elm (soft)	*Maple (soft)*	*Sycamore*
		Tupelo
		Willow

This bulletin is one of a series on the nature and uses of important species of Southern hardwoods. Others will be issued from time to time. Information on any Southern hardwood will be furnished on request.

(Wood sections courtesy of the Forest Products Laboratory, Madison, Wis.)

SOUTHERN HARDWOOD PRODUCERS, Inc.
805 STERICK BUILDING
MEMPHIS, TENN.

Nature decorated walls in Ribbon Stripe black gum outrivalling anything man can do. The ceiling is tupelo—the trim Southern ash.



Southern Hardwood Producers, Inc., consists of 76 firms having 104 sawmills and an annual capacity of 1,285,000,000 feet. In addition to the saw mills many of these firms have wood-using industrial plants for the manufacture of oak, beech, gum and pecan flooring, interior trim, dimension of all descriptions, veneers, plywood, boxes, crates; and other fabricated hardwood products.

FIRMS SPONSORING SOUTHERN HARDWOOD INFORMATION

(Arranged Alphabetically)

ADAMS-EDGAR LBR. CO.	Morton, Miss.
ANGELINA HDWD. CO.	Keltys, Texas
AUGUSTA HDWD. CO.	Augusta, Ga.
J. W. BLACK LBR. CO.	Corning, Ark.
C. P. BODINE LBR. CO.	Memphis, Tenn.
B. F. BOLTZ MFG. CO.	Bastrop, La.
BRADLEY LBR. CO. OF ARKANSAS	Warren, Ark.
BREECE-WHITE MFG. CO.	Eudora, Ark.
W. P. BROWN & SONS LBR. CO.	Louisville, Ky.
CHAPMAN & DEWEY LBR. CO.	Memphis ,Tenn.
CHICAGO MILL & LBR. CO.	Chicago, Ill.
CROSSETT LBR. CO.	Crossett, Ark.
DAVIS BROS. LBR. CO., Ltd.	Ansley, La.
DEAL-CURTIS LBR. CO., INC.	Drifton, Fla.
DILLMAN INDUSTRIES, INC.	Caruthersville, Mo.
DIERKS LBR. & COAL CO.	Kansas City, Mo.
DIXIE LBR. CO., INC.	Jacksonville, Fla.
EASTMAN-GARDINER HDWD. CO.	Laurel, Miss.
FAUST BROS. LBR. CO.	Jackson, Miss.
FORDYCE-CROSSETT SALES CO.	Fordyce, Ark.
FROST LBR. INDUSTRIES, INC.	Shreveport, La.
GREAT SOUTHERN LBR. CO.	Bogalusa, La.
D. H. HALL LBR. CO.	Columbus, Miss.
HALL-INZER LBR. CO.	Amory, Miss.
HALL & NEELY	New Albany, Miss.
W. B. HARBESON LBR. CO.	DeFuniak Springs, Fla.
HARDWOOD LBR. CO. OF LA., INC.	Port of Lake Charles, La.
HILLYER-DEUTSCH-EDWARDS, INC.	Oakdale, La.
HILLYER-EDWARDS-FULLER, INC.	Oakdale, La.
HOFFMAN LBR. CO.	Columbia, S. C.
HOWE LBR. CO.	Helena, Ark.
W. L. HUNTER LBR. CO.	Inverness, Miss.
JACKSON SAW MILL CO., INC.	Jackson, Miss.
J. M. JONES LBR. CO.	Natchez, Miss.
BASIL E. KENNEY LBR. CO.	Blountstown, Fla.
KIRBY LUMBER CORP.	Houston, Texas
R. F. LEARNED & SON	Natchez, Miss.
LEXINGTON LUMBER CO.	Columbia, S. C.
THE LONG-BELL LBR. CO.	Kansas City, Mo.
LOUISIANA CENTRAL LBR. CO.	Clarks, La.
MANSFIELD HDWD. LBR. CO., INC.	Shreveport, La.
MAY BROTHERS, INC.	Garden City, La.
McCARROLL LBR. CO.	Denham Springs, La.
McGRAW-CURRAN LBR. CO.	Yazoo City, Miss.
THE MENGEL CO.	Louisville, Ky.
MIDWAY LBR. CO.	Blountstown, Fla.
MISSISSIPPI VALLEY HDWD. CO., INC.	Memphis, Tenn.
MOBILE RIVER SAW MILL CO., INC.	Mt. Vernon, Ala.
NEWELLTON HDWD. CO., INC.	Newellton, La.
NORTHERN OHIO CO.	Parkin, Ark.
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WELSH LUMBER CO.	Memphis, Tenn.
WILLIAMS & VORIS LBR. CO.	Chattanooga, Tenn.
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